IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims are listed below for the convenience of the Examiner. No amendments have been made. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (previously presented) A character string recognition apparatus, comprising:

a key character code extraction unit automatically extracting a code string of a key word which is a node of a character string from a character string category to be recognized and expressed as a character code;

a key word extraction unit separating an image of the character string into images of individual characters, recognizing the individual character images and extracting as key word characters, a string of characters corresponding to the code string of the key word;

a partial area extraction unit extracting a partial area falling between extracted key words from the image of the character string; and

a recognition unit holistically recognizing a character string in the partial area extracted by said partial area extraction unit.

2. (original) The apparatus according to claim 1, further comprising a verification unit verifying a recognition result of the holistic recognition by said recognition unit.

3. (previously presented) The apparatus according to claim 1, wherein when the key word is extracted from the image of the character string, but only part of a key character forming the key word is extracted, an extraction condition of the key character for preceding and subsequent characters is mitigated, and the key character is re-extracted.

4. (previously presented) The apparatus according to claim 1, wherein during extraction of the key word from the image of the character string, when a partial character string, including leading and trailing characters of the key word and more than a predetermined percentage of the characters forming the key word, is extracted, said key word extraction unit regards the partial character string as the key word.

5. (previously presented) The apparatus according to claim 1, wherein during extraction of the key word from the image of the character string, when a partial character string includes at least two separate characters in the key characters and more than a predetermined percentage of the characters in the key word are in an area enclosed by the separate characters, said key word extraction unit extracts the partial character string as a portion of the key word.

6. (previously presented) The apparatus according to claim 1, wherein when a key word is extracted from the image of the character string, said key word extraction unit performs a holistic recognizing process on an extracted key word or a partial key word, and verifies probability as a word.

7. (previously presented) The apparatus according to claim 1, wherein when a key word is extracted from the image of the character string, said key word extraction unit compares an area segmented as one character in character feature and word feature, and extracts the string of characters forming at least part of the key word.

8. (previously presented) The apparatus according to claim 1, wherein when a word is extracted using word feature of the key word from the image of the character string, said key word extraction unit enhances recognition precision in word recognition by referring to a dictionary in which a word easily misrecognized as the key word is entered as a similar word.

9. (previously presented) The apparatus according to claim 1, wherein when the code string of the key word which is the node of the character string is extracted from the character string category, said key character code extraction unit extracts at least one of a first character having a first predetermined number of occurrences among a first set of character strings to be recognized, a second character having a second predetermined number of occurrences in a character string unit, and a second set of closely associated characters as the key words.

10. (previously presented) The apparatus according to claim 1, wherein an identifiable character which is not easily misrecognized is entered in advance, and said key character code extraction unit extracts the identifiable character as a key character when the code string of the key word is the node of the character string from a character string category.

11. (original) The apparatus according to claim 1, wherein when a word area is holistically recognized, said recognition unit performs a word recognizing process, segments a character for the area, and recognizes the character so that a word recognition result can be determined when a character contained in the word recognition result is contained as n higher order and has a number of occurrences equal to or larger than a threshold in the character recognition result.

12. (original) The apparatus according to claim 2, wherein:

said recognition unit holistically recognizes a word area based on a word feature generated by combining character features;

said verification unit computes a division position of each character in a word image from a matching template, compares line density of a word image obtained at each division position with line density held by each character of a recognized word, and rejects a word recognition result when a sum of the line density, or a difference in a collation ratio is larger than a threshold.

13. (original) The apparatus according to claim 2, wherein:

said recognition unit holistically recognizes a word area based on a word feature generated by combining character features;

said verification unit computes a division position of each character in a word image from a matching template, compares peripheral distribution of a word image obtained at each division position with peripheral distribution held by each character of a recognized word, and rejects a word recognition result when a sum of the peripheral distribution, or a difference in a collation ratio is larger than a threshold.

14. (original) The apparatus according to claim 2, wherein:

said recognition unit holistically recognizes a word area based on a word feature generated by combining character features;

said verification unit compares a number of characters in a recognized word is compared with a number of characters estimated from a word image, and rejects a word recognition result when a difference in the number of characters is larger than a threshold.

15. (previously presented) A character string recognition apparatus, comprising:

key character code extraction means for automatically extracting a code string of a key word which is a node of a character string from a character string category to be recognized and expressed as a character code;

key word extraction means for separating an image of the character string into images of individual characters, recognizing the individual character images and extracting as key word characters, a string of characters corresponding to the code string of the key word;

a partial area extraction means extracting a partial area falling between extracted key words from the image of the character string; and

recognition means for holistically recognizing a character string in the partial area extracted by said partial area extraction unit.

16. (previously presented) A character string recognition apparatus, comprising:

a recognition target character string group storage unit storing a list of character strings in a category to be recognized;

a key word determination unit searching said recognition target character string group storage unit for each character to obtain a number of occurrences of each character, defining a character having a large number of occurrences as a key character, and defining a character string having a large number of occurrences as a key word; and

a key word extraction unit separating an image of a character string into images of individual characters, recognizing the individual character images in the character string and extracting as key word characters, a string of characters corresponding to the code string of the key word.

17. (previously presented) A character string recognition apparatus, comprising:

a key character/word storage unit storing a determined key character or key word; and

a key character/word extraction unit separating an image of the character string into images of individual characters, recognizing the individual character images and extracting a character string as a key word if a part of the character string in the key word is extracted when a key character or a key word stored in said key character/word storage unit is extracted from the image of the character string to be recognized.

18. (previously presented) A character string recognition apparatus, comprising:

a word recognition unit recognizing individual character images in an image of a character string to identify a word; and

a verification unit checking whether or not a recognition result of said word recognition unit is correct.

19. (original) The apparatus according to claim 18, wherein said verification unit verifies a recognition result based on line density or peripheral distribution.

20. (previously presented) A key word determining method, comprising:

obtaining a number of occurrences of each character in a list stored in advance based on the list of character strings in a category to be recognized, defining a character having a large number of occurrences as a key character, and defining a character string having a large number of occurrences as a key word; and

recognizing individual character images in an image of a character string to identify at least one word.

21. (previously presented) A character string recognizing method, comprising:

obtaining a number of occurrences of each character in a list stored in advance based on the list of character strings in a category to be recognized, defining a character having a large number of occurrences as a key character, and defining a character string having a large number of occurrences as a key word;

extracting the key character or the key word from a character string image to be recognized; and

recognizing individual character images in an image of a character string to identify a word for each area delimited by each key character or key word in the character string image to be recognized.

22. (previously presented) A computer-readable storage medium storing a program used to direct a computer to perform a method comprising

obtaining a number of occurrences of each character in a list stored in advance based on the list of character strings in a category to be recognized, defining a character having a large number of occurrences as a key character, and defining a character string having a large number of occurrences as a key word; and

recognizing individual character images in an image of a character string to identify at least one word.

23. (previously presented) A computer data signal embodied in a carrier wave and representing a program that causes a computer to control interchanging data concerning a process included in a series of process flows with an external device, the process comprising:

obtaining a number of occurrences of each character in a list stored in advance based on the list of character strings in a category to be recognized, defining a character having a large number of occurrences as a key character, and defining a character string having a large number of occurrences as a key word;

extracting the key character or the key word from a character string image to be recognized; and

recognizing individual character images in an image of a character string to identify a word for each area delimited by each key character or key word in the character string image to be recognized.

24. (previously presented) A storage medium storing a program recognizing a character string image, said program controlling a processor to perform a method comprising:

automatically extracting a code string of a key word which is a node of a character string from a character string category to be recognized and expressed as a character code;

separating an image of the character string into images of individual characters;

recognizing the individual character images;

extracting the extracted key word or a part of the key word from a character string image; and

holistically recognizing character strings in partial areas determined by the extracted key words.

a key word extraction unit separating an image of the character string into images of individual characters, recognizing the individual character images and extracting as key word characters, a string of characters corresponding to the code string of the key word;

a partial area extraction unit extracting a partial area falling between extracted key words from the image of the character string; and

a recognition unit holistically recognizing a character string in the partial area extracted by said partial area extraction unit.